



# ***Integration of Computers and Electronics with Textiles***

## ***Overview:***

The Natick Soldier Center, a subordinate activity of the U.S. Army Soldier Systems Center-Natick, has a high interest in integrating electronic capabilities and components with textile materials and soldier equipment. Future Warrior Systems already being planned have heads up displays, wireless weapons, global positioning, chemical detectors, battery power, personal physiological status sensors, combat ID, all linked up to the Warrior's personnel computer to assist in situational awareness and understanding. Network cables, for data and power transmission and a variety of antennas for near and remote communications need to be integrated into the Warrior's clothing and equipment to reduce weight and bulk of the current electronic system interface. Active intelligent textile systems have the capacity of improving the Warrior's performance by sensing and responding to a situational combat need allowing the Warrior to continue his mission.

A science & technology work area in this regard was started in FY99 to address the area of electro-optic textile integration. In addition, an Army MANTECH program began in FY01 to address the manufacturing aspects of integrating electro-optic materials into textiles. The areas of interest that are being explored under these programs include:

- Integration of low level conductive channels in textile materials to allow plug-in sites to join power source with equipment points;
- Antennas built-in to textile materials that are visually covert and body conformal;
- Multiple path conductive and optical networks for data and power transmission enabling physiological and environmental sensors;
- Textile based computer peripheral devices (keyboards, touch-pads and displays);
- Integration of solar generating components into textiles;
- Integration of conductive plastic battery (rechargeable) material into textiles.

## ***Point of Contact:***

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